We Claim:

1. A method of producing Bisphenol-A, comprising the steps of:

reacting Phenol and Acetone in the presence of a catalyst to form a product solution including at least Bisphenol-A and Phenol, and where the Bisphenol-A, Phenol and a solvent exhibit a phase equilibrium relationship between the components of the product solution such that they exhibit compartments represented by a projection of a polythermal ternary phase diagram where Bisphenol-A and an adduct of Bisphenol-A and Phenol can crystallize respectively;

providing the solvent in said product solution, wherein said solvent is comprised of Acetone, Water or a mixture of Acetone and Water;

crystallizing an adduct of Bisphenol-A and Phenol from a first crystallization stage at a first selective composition of a feed stream to an adduct crystallizer stage such that the adduct is formed;

dissolving the adduct in a solvent having a selective composition; and

crystallizing substantially pure solid Bisphenol-A in a second crystallization stage at a second selective composition of a feed stream to a Bisphenol-A crystallizer stage such that the substantially pure Bisphenol-A is crystallized.

2. The method of Claim 1 wherein the first and second selective compositions of feed solutions are achieved by adjusting the mass concentration of any one of, or combination of, Phenol, Bisphenol-A and solvent in the feed streams.

3. The method of Claim 1 wherein the fisrst selective composition of the feed stream to the adduct crystallizer is comprised of Bisphenol-A at a composition in a range of approximately 40 wt. % to 60 wt.%, and a solvent at a composition in a range of approximately 0 wt. % to 15 wt.%.

4. The method of Claim 1 wherein the fisrst selective composition of the feed stream to the adduct crystallizer is comprised of Bisphenol-A at a composition in a range of approximately 25 wt. % to 60 wt.%, and a solvent at a composition in a range of approximately 0 wt. % to 25 wt.%.

5. The method of Claim 1 wherein the fisrst selective composition of the feed stream to the adduct crystallizer is comprised of Bisphenol-A at a composition in a range of approximately 10 wt. % to 60 wt.%, and a solvent at a composition in a range of approximately 0 wt. % to 35 wt.%.

6. The method of Claim 1 wherein the second selective composition of the feed stream to the Bisphenol-A crystallizer is comprised of Bisphenol-A at a composition in a range of approximately 55 wt. % to 100 wt.%, and a solvent at a composition in a range of approximately 0 wt. % to 15 wt.%.

7. The method of Claim 1 wherein the second selective composition of the feed stream to the Bisphenol-A crystallizer is comprised of Bisphenol-A at a composition in a range of approximately 55 wt. % to 100 wt.%, and a solvent at a composition in a range of approximately 0 wt. % to 40 wt.%.

8. The method of Claim 1 wherein the first stage crystallization is carried out at a temperature in the range of about 0°C to 100 °C.

9. The method of Claim 1 wherein the first stage crystallization is carried out at a temperature in the range of about 20°C to 80 °C.

10. The method of Claim 1 wherein the first stage crystallization is carried out at a

temperature in the range of about 40 °C to 60 °C.

11. The method of Claim 1 wherein the second stage crystallization is carried out at a temperature in the range of about 0°C to 160 °C.

12. The method of Claim 1 wherein the second stage crystallization is carried out at a temperature in the range of about 80°C to 120 °C.

13. The method of Claim 1 wherein the solvent is comprised of a mixture of about 50% Acetone and about 50% Water on a weight basis.

14. The method of Claim 1 wherein the solvent is comprised of a mixture Acetone and Water at a composition in the range of 99 wt.% Acetone and 1 wt.% Water to 1 wt.% Acetone and 99 wt.% Water.

15. The method of Claim 1 wherein the solvent is comprised of a mixture of Acetone and Water at a composition in the range of 40 wt.% Acetone and 60 wt.% Water to 60 wt.% Acetone and 40 wt.% Water.

16. A method of recovering Bisphenol-A solid from an adduct of Bisphenol-A and Phenol, comprising the steps of:

dissolving the adduct in a solvent to form a feed solution; and

crystallizing Bisphenol-A from the feed solution wherein the composition of the feed solution and the temperature of the crystallizing step are selected such that substantially pure Bisphenol-A solid is crystallized.

17. A method of producing solid Bisphenol-A from a product solution, characterized in that the product solution includes components that exhibit a phase equilibrium relationship

they define phase compartments represented by a projection of a polythermal ternary phase diagram, where Bisphenol-A and an adduct of Bisphenol-A and Phenol can crystallize respectively; and the composition of the product stream is selected to be within the Bisphenol-A phase compartment such that substantially pure solid Bisphenol-A is formed upon crystallization.

18. A system for producing Bisphenol-A comprising:

a reactor unit wherein a product stream is produced including at least Bisphenol-A and Phenol;

a first stage crystallizer, the composition of the product stream fed to the first stage crystallizer being selectively adjusted such that an adduct of Bisphenol-A and Phenol is produced upon crystallization in the first stage crystallizer;

a dissolution tank where the adduct of Bisphenol-A and Phenol is dissolved in the product stream; and

a second stage crystallizer, the second stage crystallizer receiving the product stream and the composition of the product stream is selectively adjusted such that substantially pure Bisphenol-A is produced upon crystallization in the second stage crystallizer.

19. The system of Claim 18 further comprising:

a first mixer/separator unit located upstream of the first stage crystallizer, the mixer/separator unit configured to selectively adjust the composition of the product stream fed to the first stage crystallizer.

20. The system of Claim 19 further comprising:

a solvent recovery unit for recovering solvent used in the system, and said solvent recovery unit being coupled to at least any one or more of the reactor unit, dissolution tank and mixer/separator for selectively adjusting the composition of the product stream.

21. The system of Claim 18 where in the first and second crystallizer stages are

comprised of one or more crystallizer unit.

22. The system of Claim 18 further comprising:

a second mixer/separator unit located upstream of the second stage crystallizer, the mixer/separator unit being configured to selectively adjust the composition of the product stream fed to the second stage crystallizer.

23. The system of Claim 22 further comprising one or more processing units downstream of the second stage crystallizer, and wherein the one or more processing units produce recycle streams, and where one or more of the recycle streams are conveyed to the first and/or second mixer/separator.